



U.S. Department of Energy
Office of Inspector General
Office of Audits and Inspections

Inspection Report

Management of Explosives at Selected Department Sites

INS-O-12-02

July 2012



Department of Energy
Washington, DC 20585

July 2, 2012

MEMORANDUM FOR THE CHIEF HEALTH, SAFETY AND SECURITY OFFICER
MANAGER, IDAHO OPERATIONS OFFICE
MANAGER, SAVANNAH RIVER SITE
MANAGER, SANDIA SITE OFFICE
MANAGER, LOS ALAMOS SITE OFFICE

Sandra D. Bruce

FROM: Sandra D. Bruce
Assistant Inspector General
for Inspections
Office of Inspector General

SUBJECT: INFORMATION: Inspection Report on "Management of
Explosives at Selected Department Sites"

INTRODUCTION AND OBJECTIVE

In support of its research and development mission and security of its facilities, the Department of Energy maintains a significant inventory of explosives. In terms of mission, the Department conducts research into explosives detection, effects and mitigation. These processes are inherently hazardous. To help reduce the risk of harm, the Department developed the *DOE Explosives Safety Manual* to provide direction for protecting its personnel from injury during explosives operations.

While the Department had developed and implemented a number of explosives related safety measures, those measures have not always been completely effective. For example, we reported in our Audit Report on *The Department's Management of Non-Nuclear High Explosives* (DOE/IG-0730, June 2006), that improvements could be made in maintaining control, accountability and safety of explosives. The Department concurred with our recommendations for improvement and indicated that corrective actions to resolve the identified safety issues had been implemented.

Given the dangerous nature of explosives, the potential for catastrophic incidents and our prior concerns, we initiated this inspection to determine whether explosives were being safely handled and stored at selected Department sites.

RESULTS OF INSPECTION

Our inspection revealed problems with handling and storing explosives at each of the four contractor-operated sites we visited, potentially increasing the risk of harm to personnel and infrastructure. Specifically, we found that:

- Contrary to established practice designed to minimize the impact of inadvertent detonation, Savannah River Site and Idaho National Laboratory performed explosive shipment inspections during peak traffic hours at populated main gates rather than at remote area and/or during non-peak traffic hours;

- Savannah River and Idaho inspection procedures could potentially allow inspection handlers to return unsafe explosives shipments to public highways, possibly exposing the general public to hazardous conditions; and,
- Following one experiment, Sandia National Laboratories returned the remains of explosives that had undergone various tests to storage without completing a required, documented determination of whether storage with other active explosives represented an unacceptable safety risk.

We also observed that excess combustible and non-combustible materials were being stored in explosives bunkers; incorrect bunker placards and fire symbols were posted on bunkers and buildings; and, excess explosives waste was not being disposed of timely. These actions could have resulted in injury to employees and members of the public from unanticipated explosives events. Notably, management officials at all of the sites took immediate action to resolve these particular issues as soon as we brought them to their attention. The only issue we observed at Los Alamos, the storage of boxes and trash in an explosives operating area, was corrected immediately after we identified it.

We found that Department management had not focused the attention needed to ensure that the responsible facilities contractors properly implemented Department policies for handling and storing explosives, as required. Also, contractor officials charged with managing and safeguarding explosives had not ensured compliance with various aspects of the *DOE Explosives Safety Manual*. Although various reasons were offered by contractor officials in support of their approaches, the actions taken did not comport with protocols established by the Department for ensuring explosives safety.

Failure to properly implement safety protocols for explosives handling and storage procedures unnecessarily increases the risk of harm to personnel, infrastructure and equipment. In response to our findings, Department management took corrective actions during the inspection to address most of the issues identified in this report. For the remaining policy and operational issues, we made recommendations regarding changes to explosives safety policy and procedures. The actions initiated by the Department, coupled with those outlined in our recommendations should, if fully implemented, help improve the safety at the Department's explosives storage and operating facilities.

MANAGEMENT REACTION

The Chief Health, Safety and Security Officer generally concurred with the intent of the findings of the report, stating that the explosive shipment inspection issue had already been properly addressed; however, the Office of Health, Safety and Security maintained that it would discuss our concerns, make appropriate additions and update the Technical Standard during the next annual Explosives Safety Committee meeting. In separate comments, the Manager, Idaho Operations Office generally agreed with the intent of our recommendation and indicated that procedures would be reviewed to ensure that explosives will not be delivered during peak-traffic hours.

Additional, specific comments regarding our observations and recommendations, and our responses to those comments are discussed at relevant points in the body of our report.

The comments provided by HSS, to which comments from Idaho were appended, are included in their entirety in Appendix 3. The other sites we reviewed elected not to provide official comments on our report.

Attachment

cc: Deputy Secretary
Associate Deputy Secretary
Acting Under Secretary of Energy
Under Secretary for Nuclear Security
Assistant Secretary for Nuclear Energy
Chief of Staff

MANAGEMENT OF EXPLOSIVES AT SELECTED DEPARTMENT SITES

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MANAGEMENT OF EXPLOSIVES AT SELECTED DEPARTMENT SITES

HANDLING AND STORING EXPLOSIVES

Improvements were needed for the handling and storage of explosives at each of the four Department of Energy (Department) sites reviewed to assure the safety of its personnel and infrastructure. The four sites we inspected were Savannah River Site (Savannah River), Idaho National Laboratory (Idaho), Los Alamos National Laboratory (Los Alamos) and Sandia National Laboratories, New Mexico (Sandia). We found issues with designated inspection stations, acceptance of explosives shipments and tested explosives. As the Department notes in its governing policy, maintaining explosives safety in all operations within the Department is an ongoing process that, to be truly effective, must be given high priority in all program oversight, direction, management and line activities. Also, personnel, infrastructure and equipment must be appropriately protected to facilitate the execution of the Department's crucial explosives research and mitigation mission.

Designated Inspection Stations

Contrary to established practice designed to minimize the impact of inadvertent detonation, Savannah River and Idaho performed inspections of explosives at the sites' main gates, a practice that unnecessarily exposed employees to the risk of injury from unanticipated explosives events. DOE Manual 440.1-1A, *DOE Explosives Safety Manual* (Safety Manual), requires explosives inspection handlers to inspect incoming vehicles at a station remote from hazardous and populated areas. We did not physically observe explosives loads being inspected at the main gate; however, our review of internal procedures and interviews with explosives handling personnel at both Savannah River and Idaho revealed that inspections were being conducted at the main gates. In response to our concern, a senior Savannah River official took corrective action by identifying a remote and unpopulated area to conduct inspections. However, Idaho has continued its practice of inspecting explosives shipments at the main gate. Idaho officials told us that explosives shipments are normally delivered through the main gate during non-peak traffic hours, 9:00 a.m. to 3:00 p.m. However, Idaho's 2011 explosives shipment log indicated that two of the six explosives shipments were delivered at approximately 8:30 a.m.

During our review and after changes were made at Savannah River, the Department's Office of Health, Safety and Security's (HSS) Explosives Safety Committee (Committee), with responsibility for Safety Manual updates, changed the section of the Safety Manual that describes inspection station locations.

Specifically, the Committee proposed changes that would result in the removal of language concerning inspecting vehicles at a station remote from hazardous and populated areas, and proposed the following language: *If practicable, it is recommended that the Department receives explosives shipments at a cargo entrance gate, less travelled gate or through the primary gate during non-peak hours and moderate vehicular and commuter traffic.* The Committee Chairman informed us that this change was proposed because the inspections are visual and considered as relatively low-risk activity. The Committee members voted not to accept the proposed language during its May 2012 meeting; however, added *"The Inspections, requiring opening or moving shipping containers containing explosives...shall be done at a location sited for explosives operations."* We believe that this modification is a first step in complying with the Department's explosives policy to minimize the impact of unplanned detonation; however, additional policy clarification is necessary to reduce the risk associated with shipment inspections.

Acceptance of Explosives Shipments

Our review revealed that inspection procedures did not include a safe location to correct problems with potentially unsafe explosives shipments. Specifically, Savannah River and Idaho internal procedures could allow explosives inspection handlers to return possibly unsafe explosives shipments to public highways, thereby exposing the general public to additional unsafe conditions. Officials at both sites stated that it was the shipper's responsibility, not the Department's, to take corrective actions for problems that occurred prior to a shipment arriving at the sites. Further, these officials indicated that drivers may object to their trucks being held at Department sites for any necessary repairs. The Safety Manual provides guidance regarding actions that should be taken in the event that a vehicle does not pass inspection. For example, if an inspection identifies "unsatisfactory conditions" with a truck, the truck should be disconnected from the trailer at the inspection station and moved to a position where it will not endanger any other explosives. Also, if unsatisfactory conditions are identified with a trailer or its load, the trailer should be moved, using a route as far as possible from high concentrations of personnel, to an isolated location where the conditions are to be corrected.

Although we did not witness instances of unsatisfactory conditions with incoming explosives shipments, senior Savannah River and Idaho officials informed us that corrective actions were taken to address the issues identified with the procedures for a failed truck

or trailer inspection. Specifically, during our inspection, Savannah River officials changed their explosives safety procedures, *Munitions Life Cycle Management Procedure (1-1841)*, to relocate trucks with an unsafe condition, including the vehicle or load, to a safe area. Further, Idaho officials changed the explosives procedures requiring incoming unsafe trucks to be moved to areas safe from built-up areas and from areas with high personnel concentrations. These changes to explosives safety procedures now identify safe locations to correct any unsatisfactory conditions with a truck or trailer, consistent with the requirements of the Safety Manual, thereby diminishing the exposure to the general public.

Tested Explosives

We identified one experiment that involved several tests in which a Sandia official did not ensure that potential safety problems with explosives damaged during testing were properly resolved. Notably, we found that the remains of the explosives that had undergone various tests were returned to storage without completing a required, documented determination of whether storing the tested explosives with other active explosives represented an unacceptable safety risk. The Safety Manual requires the Department to isolate explosives that have undergone severe testing and may present a special risk to other explosives until a documented determination is made. The documented determination provides a final assessment on the stability of the explosives and the appropriateness of a return to storage.

Specifically, our inspection identified three metal boxes that contained the collected explosives remnants from an experiment that had been conducted eight months prior to the inspection. The experiment consisted of striking an intact mortar at increasing speeds with a projectile to determine the impact characteristics. Five mortars were tested and the explosives of two mortars completely dissipated. The other three mortars tested were scattered within the impact area, then collected by the Principal Investigator (PI) and placed in the metal boxes. Also, the PI told us that detonations did not occur in any of the tests. Without a documented determination to assess the stability of the explosives, exposure to other explosives in storage could lead to a potentially hazardous condition.

During our inspection, Sandia officials took corrective action by initiating an operations facility shutdown and completing a

100 percent review of all explosives operations. Further, Sandia's documented determination revealed that a "special risk" did not exist and that the explosives did not need to be isolated in storage. Also, two senior managers and the Center Director conducted a walkthrough of the operations facility and bunker to ensure explosives were stored in a manner that comported with the Safety Manual.

OTHER RELATED EXPLOSIVES MATTERS

Improvements are also needed in the management of explosives storage housekeeping and signage, as well as excess explosives waste disposal. We determined that officials at the four sites allowed excess combustible and non-combustible materials to be stored with explosives. Also, Sandia, Idaho and Savannah River had not correctly posted placards and fire symbols pertaining to limits for net explosives weight and the types of explosives that are critical to determining methods used to fight fires.^{1,2} Finally, with the unexpected closure of the disposal range, Sandia had not developed a new plan or avenue for determining the location for disposal of the excess explosives waste. However, management at the four sites took corrective actions during the inspection to address the identified issues.

Storage of Combustible and Non-Combustible Materials

We discovered that Los Alamos, Savannah River, Sandia and Idaho had stored excess combustible and non-combustible materials with explosives in storage bunkers and in an explosives operating facility. The Safety Manual prohibits the Department from storing items such as empty containers, tools, conveyors, lift trucks and skids in a bunker containing explosives. Also, combustible materials such as excess packing material and boxes should not be stored in a bunker containing explosives. The following are examples of combustible and non-combustible materials we found at each of the sites inspected:

- Los Alamos had an explosives operating area containing boxes and one large bag of trash;

¹ Net explosives weight (NEW) is defined as the total weight of all explosives, propellant, and pyrotechnic material contained within a single item. Maximum NEW is the limit of the combined NEW of all explosives items that can be safely stored within a facility.

² Placards or fire symbols posted on bunkers should identify potential hazards located within explosives operating and storage facilities, and identify personnel limits and maximum NEW.

-
- Savannah River had two bunkers where two hand trucks were stored;
 - Sandia had two bunkers with an empty wooden pallet stored in each; and,
 - Idaho had two bunkers with excess and unused materials (one was used to store numerous packages of firing range targets, the other used to store a set of scales).

Storing excess and unused combustible materials increases the risk of a hazard in the event of a bunker fire that could exacerbate an already critical situation. During our inspection, management at the inspected sites took immediate corrective action by removing the hand trucks as well as combustible materials including boxes, trash, targets, pallets and packing materials.

Bunker Hazard Signage

Our inspection revealed that, in general, the four sites adequately maintained its bunkers; however, placards and fire symbols did not always represent the hazards stored within the explosives bunkers at three sites—Savannah River, Sandia and Idaho. The Safety Manual requires the Department to display placards and fire symbols consistently on buildings and work areas throughout an entire facility to warn of potential hazards from explosives and to provide information for emergency situations. Nevertheless, we identified examples of placards and fire symbols incorrectly displayed:

- Savannah River had one bunker with fire symbols displayed that identified a hazard that indicated tear gas was present, but the tear gas had been previously removed;
- Sandia had two bunkers with placards that identified mass detonation explosives, such as bulk explosives, but the bunker contained fragmentation producing explosives such as projectiles; and,
- Idaho had two bunkers that did not legibly post the limits for the net explosives weight—the signage had deteriorated because of exposure to the weather.

Incorrect fire symbols and placards or illegible net explosives weight limits posted on a facility where explosives are stored or handled can lead to potential safety issues, including decisions

regarding whether or not to fight a fire in a bunker. During our inspection, management at three sites immediately took corrective action by changing placards, removing fire symbols and adding explosives weight limits.

Excess Explosives Waste Disposal

We found that Sandia had not developed a new plan or avenue for determining the location for disposal of the excess explosives waste with the unexpected closure of the disposal range. We determined that the excess explosives waste at Sandia had increased to 1,320 pounds and there was no plan or avenue to dispose of the waste. Specifically, Sandia's excess explosives waste had been disposed of at a Kirtland Air Force Base disposal range. However, due to environmental issues, the disposal range closed in August 2010 for routine disposal operations, but remained open in the event that an emergency disposal was required. Our subsequent discussions with Sandia officials concerning explosives waste disposal revealed that they currently have a goal to relocate all excess explosives waste to an alternate disposal facility by August 2012. Senior Sandia officials informed us that the shipments were sent to the new disposal facility in August, September, November and December 2011, and February 2012, and are scheduled for disposal routinely thereafter.

CONTRIBUTING FACTORS AND POTENTIAL IMPACT

These issues occurred, in part, because Department management had not focused the attention needed to ensure that responsible contractors properly implemented Department policies for handling and storing explosives, as required. Also, contractor officials charged with managing and safeguarding explosives had not ensured compliance with various aspects of the Safety Manual. Although various reasons were offered by contractor officials in support of their approaches, the actions taken did not comport with the protective and preventative best explosives safety protocols established by the Department.

A single incident has the potential for catastrophic consequences due to the dangerous nature of explosives. Failure to properly implement safety protocols for explosives handling and storage procedures unnecessarily increases the risk of harm to personnel, infrastructure and equipment. In response to our findings, Department management at the four sites we visited took corrective actions during the inspection to address all but one of

the issues identified in this report. For the remaining policy and operational issues, we made two recommendations regarding changes to explosives safety policy and procedures. At each of the four sites reviewed, Department management should continue with its corrective actions and its efforts to sustain best explosives practices initiated during our inspection. Such explosives management practices, if fully implemented, should help improve the safety at these or other Department explosives storage and operating facilities.

RECOMMENDATIONS

To address the policy and operational issues we identified, we recommend that the Chief Health, Safety and Security Officer:

1. Ensure that the Department's explosives safety policy incorporates language pertaining to inspections of incoming vehicles carrying explosives to limit exposure to a minimum number of personnel, for a minimum time and to a minimum amount of hazardous material.

Further, we recommend that the Manager, Idaho Operations Office:

2. Direct Idaho to revise explosives safety procedures where necessary to ensure consistency with Department requirements.

MANAGEMENT AND INSPECTOR COMMENTS

The Chief Health, Safety and Security Officer concurred with the comments and the intent of the general findings of the report. Regarding recommendation 1, HSS indicated that the Committee felt that the issue regarding vehicle inspection had already been properly addressed; however, HSS maintained that it would discuss our concerns and make appropriate additions when the Technical Standard is updated during the next annual Committee meeting.

The Manager, Idaho Operations Office agreed with the intent of recommendation 2 that contractor explosives safety procedures should be consistent with Department requirements, and that Idaho should modify its explosives safety procedures as necessary. However, Idaho disagreed with several statements included in our report and indicated that its explosive vehicle inspection station was located in a remote and less populated area.

Idaho maintained the number of personnel exposed to explosive laden vehicles accessing the site through its main gate was limited.

However, we noted that hundreds of Federal and contractor personnel must pass through the main gate daily, which is located adjacent to the inspection station. Idaho officials contend that personnel in vehicles are transients; however, in our discussions with the Committee Chairman and two other voting members of the Committee, we were told that employees and contractors in vehicles passing next to a truck being inspected would not meet the definition of a transient. Contrary to Idaho's statements, we were also told by Idaho personnel that the truck inspections were performed at Idaho's main gate. We observed that the gate area becomes heavily populated at least twice a day when hundreds of site employees enter and exit the facility. Therefore, we believe that Idaho needs to implement explosives safety requirements to minimize safety risks for the Department.

Further, Idaho officials stated that inspections should not be governed by quantity-distance requirements, although our report did not address the quantity-distance requirements for inspection stations. Finally, Idaho stated that risks associated with the inspection activity are similar to those associated with transportation of explosive materials in-commerce. We do not disagree with Idaho's statement; however, we believe that explosives may shift during transportation, potentially creating a hazardous condition. As such, it would be prudent to inspect an explosives load at a remote location in lieu of the main gate. We noted that of the four sites we reviewed, Idaho was the only facility that maintained an explosive inspection station at the site's main gate.

Idaho officials also disagreed with a statement in our report that explosives inspection handlers could potentially return unsafe explosives shipments to public highways. These officials stated that they follow the Safety Manual, which provides guidance regarding safe holding areas for explosive shipments that fail inspection. The Safety Manual specifically requires that in the event of an unsatisfactory condition of the truck, the trailer or the load, the truck, the trailer or both should be moved to a safe area to make repairs. Our review of Idaho's written explosive procedures did not identify a safe holding area. In addition, an Idaho explosives official stated that, contrary to the Safety Manual, a trailer carrying explosives that failed inspection would not be allowed to enter the site. Idaho officials further disagreed with the issue of the storage of excess combustible material with explosives. Idaho stated that it was not aware of bunkers being used to store firing range targets; however, during our discussions

with Idaho management, we identified the specific bunker where the firing range targets were found. Also, as previously mentioned in our report, Idaho took prompt corrective action by removing the targets during our fieldwork.

Finally, Idaho Operations Office disagreed with the accuracy of the conclusion that it had not focused attention on ensuring contractors properly implemented Department policies for handling and storing explosives. Idaho Operations Office officials stated that it uses the results of Department line and independent oversight and contractor assurance systems to make informed decisions about corrective actions and the acceptability of risks, and to improve the effectiveness and efficiency of the programs and site operations. However, our conclusions and findings are based on information provided to us and evaluated during the inspection. We believe that failure to properly implement safety protocols for explosives handling and storage procedures unnecessarily increases the risk of harm to personnel, infrastructure and equipment. Because of the dangerous nature of explosives, a single incident has the potential for catastrophic consequences.

Management comments and planned corrective actions are generally responsive to our recommendations and we appreciate management's recognition of the issues.

Appendix 1

OBJECTIVE

The objective of this inspection was to determine whether explosives were being safely handled and stored at selected Department of Energy (Department) sites.

SCOPE

We completed the fieldwork for this performance inspection in April 2012, at the Idaho National Laboratory in Idaho Falls, ID; Savannah River Operations Office in Aiken, SC; Los Alamos National Laboratory in Los Alamos, NM; and, Sandia National Laboratories in Albuquerque, NM.

METHODOLOGY

To accomplish the inspection objective, we:

- Reviewed and analyzed the *DOE Explosives Safety Manual*, site specific explosives safety manuals and plans, Department contracts and directives, as well as prior reports issued by the Office of Inspector General;
- Interviewed Department, National Nuclear Security Administration and contractor officials; and,
- Conducted physical observations of explosives storage and operating facilities at each site.

We conducted this performance inspection in accordance with the Council of the Inspectors General on Integrity and Efficiency's *Quality Standards for Inspection and Evaluation*. Those standards require that we plan and perform the inspection to obtain sufficient, appropriate evidence to provide a reasonable basis for our conclusions and observations based on our inspection objective. We believe the evidence obtained provides a reasonable basis for our conclusions and observations based on our inspection objective. Accordingly, the inspection included tests of controls and compliance with laws and regulations to the extent necessary to satisfy the inspection objective. In particular, we assessed implementation of the *Government Performance and Results Act of 1993* and found that performance measures had, in general, been established relating to safety and explosives management. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our inspection. Finally, we relied on computer-processed data, to some extent, to satisfy our objective related to explosives safety. We confirmed the validity of such data, when appropriate, by reviewing source documents and conducting physical observations.

An exit conference was held with Department Officials on May 14, 2012.

PRIOR REPORTS

The following Department of Energy (Department) Office of Inspector General reports are related to the handling and storage of explosives:

- Audit Report on [*Follow-up Audit of National Nuclear Security Administration's Nuclear Explosive Safety Study Program*](#) (OAS-L-11-04, June 2011). The objective of this audit was to determine whether Nuclear Explosive Safety (NES) studies and evaluations of nuclear explosives operations were timely and complete. The audit concluded that all appropriate required NES studies and operational safety reviews were completed and approved by the National Nuclear Security Administration. However, we noted that most NES studies and operational safety reviews included issues of concern that were designated as post-start findings that remained unresolved for periods ranging from 5 months to nearly 12 years. According to nuclear explosive safety experts, actions taken to address post-start findings serve to enhance nuclear explosive safety, but are not considered critical enough to suspend operations.
- Audit Report on [*The Department's Management of Non-Nuclear High Explosives*](#) (DOE/IG-0730, June 2006). The objective of this audit was to determine whether the Department was adequately managing its non-nuclear high explosive materials. The audit disclosed that two of three defense laboratories were not always maintaining control, accountability and safety over a wide variety of explosives. Specifically, we observed that Sandia National Laboratories (Sandia) could not properly account for at least 410 items, including detonators, rocket motors, shaped explosives and bulk explosive powders that had been consigned to off-site private sector organizations including laboratory subcontractors. Also, Sandia and Los Alamos National Laboratory (Los Alamos) accumulated large quantities of anti-personnel rockets, gun rounds and cartridges, and aircraft rocket motors that were not likely to be needed for current or future missions. Further, Sandia's explosive inventory system could not be reconciled to inventories maintained by certain Federal facilities at which Sandia stored explosives, revealing potential shortages of about 43 similar items and about 190,000 pounds of explosive propellant contained in 39 rocket motors owned by Sandia that were not recorded in its inventory system. Finally, both Sandia and Los Alamos were not inspecting or reviewing stability and safety characteristics of most high explosives materials.

MANAGEMENT COMMENTS

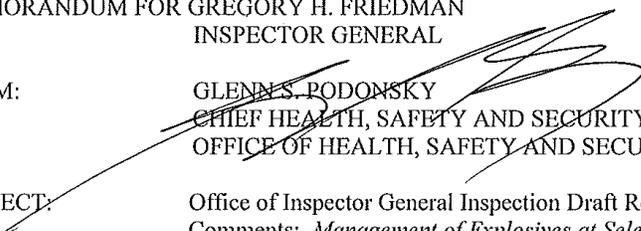


Department of Energy

Washington, DC 20585

April 30, 2012

MEMORANDUM FOR GREGORY H. FRIEDMAN
INSPECTOR GENERAL

FROM:  GLENN S. PODONSKY
CHIEF HEALTH, SAFETY AND SECURITY OFFICER
OFFICE OF HEALTH, SAFETY AND SECURITY

SUBJECT: Office of Inspector General Inspection Draft Report
Comments: *Management of Explosives at Selected
Department Sites (S10IS012)*

The Office of Health, Safety and Security (HSS) has reviewed the subject draft inspection report provided by the Office of Inspector General (IG) on March 19, 2012. Overall, HSS concurs with comment on the intent of the general findings of the IG Draft inspection report. However, HSS feels that the current explosives safety policy addresses the safe handling of explosives. We provide the following comments:

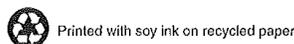
Recommendation 1: To address the policy and operational issues we identified, we recommend that the Chief Health, Safety and Security Officer:

Ensure that the Department's explosives safety policy incorporates language pertaining to inspections of incoming vehicles carrying explosives to limit exposure to a minimum number of personnel for a minimum time and to a minimum amount of hazardous material.

HSS Response: Concurs with comment

HSS has been aware of the issue cited in the Draft report, and the Department's Subject Matter Expert (SME) has been in contact with a representative of the IG's Office. In January 2012, a suggested addition to the current Draft Technical Standard on Explosives Safety was sent to the IG and to the Explosives Safety Committee (ESC) with the intent to have an e-mail vote on adding the proposed text. However, ESC felt that this issue had already been properly addressed and that it would undertake further discussion during its next scheduled face-to-face meeting to resolve the issue.

The ESC feels that the initial inspection of vehicles entering the site is not designed to inspect the condition or safety of the explosives, but rather a security inspection. All explosive materials transported to any DOE site must meet all Department of



Transportation standards for the safe transport of explosives on public roadways and are assumed to be safe. However, once the vehicle is on the DOE site and parked, awaiting unloading, the vehicle is considered an aboveground magazine and must meet all of the requirements for safety, including Quantity-Distance Criteria cited in DOE Manual 440.1-1A and the proposed DOE Standard 1212 (Explosives Safety).

The Explosives Safety Manual and the Explosives Technical Standard are living documents that are constantly reviewed and updated. HSS understands the concern of the IG and will continue to work with its representative through the HSS SME, and the ESC will discuss this concern and make appropriate additions when the Technical Standard is updated during the next annual ESC meeting.

Recommendation 2: Further, we recommend that the Manager, Idaho Operations Office:

Direct the Idaho National Laboratory to revise explosives safety procedures where necessary to ensure consistency with Department requirements.

IDAHO Response: Concur with comment

The Idaho Operations Office agrees with the intent of Recommendation 2 that contractor explosive safety procedures should be consistent with Department requirements. Based on any policy revisions resulting from Recommendation 1, the Idaho Operations Office concurs that the Idaho National Laboratory (INL) should modify their explosives safety procedures, as necessary.

However, we are providing the following specific comments on the draft report for your consideration.

1. *Contrary to established practice designed to minimize the impact of inadvertent detonation, Savannah River Site and Idaho National Laboratory performed inspections during peak traffic hours at populated main gates rather than at a remote area or during non peak hours.*

We disagree with this statement. The limited number of personnel (approximately six) at each location is associated with inspection and screening of incoming vehicles and personnel and providing security for facilities on the 890 square-mile site. Inspection activities of explosives-laden vehicles are limited to external visual inspection of vehicles, and visual inspection of external condition of the cargo packaging in vehicles which are not considered explosive operations and are not governed by quantity-distance requirements. Personnel that are not associated with the inspection and screening of incoming vehicles are considered transients. The risks associated with the visual inspection activity are similar to the risk associated with the transportation of explosive materials in-

commerce. All explosive materials arriving at the Site have been packaged and shipped in Department of Transportation (DOT) approved packaging and on DOT-certified carriers. To date, an explosive shipment has not arrived at the INL in an unsatisfactory condition. Idaho will review procedures to ensure explosives are not delivered during peak-traffic hours that normally run between 0630 and 0730.

2. *Despite Department procedures, Savannah River and Idaho inspection procedures could potentially allow inspection handlers to return unsafe explosives shipments to public highways, possibly exposing the general public to additional unsafe conditions.*

We disagree with this statement. The act of returning unsafe shipments onto public highways has not occurred at the INL. Contractor procedures have implemented the Department of Energy (DOE) Explosives Safety Manual in its entirety and there are no provisions within the contractor procedures that allow deviation from the Safety Manual. In accordance with DOE M 440.1-1A, in the event an inspection reveals an unsatisfactory condition with the trailer or its load, the trailer is moved to a holding area. Holding areas have been established at B27-606 Holding Location and Wilson Boulevard Holding Location. These locations are at greater than Inhabited Building Distance for anticipated quantities of Hazard Division 1 materials from inert and administration areas, hazardous locations, and facility boundaries. Idaho Operations Office will ensure procedures are in compliance with DOE 440.1-1A.

3. *Incorrect posting of placards and fire signals on bunkers at Idaho, Sandia and Savannah River.*

We agree with this issue and have completed corrective actions to correct legibility of posted limits. No additional corrective action is being taken.

4. *The storage of excess combustible and non-combustible materials (such as hand trucks, boxes, trash, targets, pallets and packing materials) with explosives:*

We disagree with this issue. A set of scales used for weighing explosive materials for inventory were discovered in one bunker. The scales have been removed. Idaho is not aware of bunkers being used for storage of firing range targets as identified in the report. Range targets were stored in the trailers at the Live Fire Range complex prior to removal of the trailers in 2011. The use of these trailers for explosives was discontinued in Fiscal Year 2008 and operations were limited to the assembly of targets. Contractor procedures for housekeeping are implemented.

5. *These issues occurred, in part, at three of the four sites reviewed, because Department management had not focused the attention needed to ensure that*

Appendix 3 (continued)

responsible facilities contractors properly implemented Department policies for handling and storing explosives, as required.

We disagree with the accuracy of the conclusion that Idaho has not focused attention on ensuring contractors properly implement Department policies for handling and storing explosives. Consistent with DOE O 226.1B, Implementation of Department of Energy Oversight Policy, the Idaho Operations Office uses the results of DOE line and independent oversight and contractor assurance systems to make informed decisions about corrective actions and the acceptability of risks, and to improve the effectiveness and efficiency of the programs and Site operations. No corrective action is being taken.

Idaho Operations Office agrees that explosives safety in all operations within the Department must be given high priority and personnel, infrastructure, and equipment must be appropriately protected to facilitate the execution of the Department's mission. We will continue actively supporting these objectives.

If you have any questions, please contact me at (202) 586-0271.

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1. What additional background information about the selection, scheduling, scope, or procedures of the audit or inspection would have been helpful to the reader in understanding this report?
2. What additional information related to findings and recommendations could have been included in the report to assist management in implementing corrective actions?
3. What format, stylistic, or organizational changes might have made this report's overall message clearer to the reader?
4. What additional actions could the Office of Inspector General have taken on the issues discussed in this report which would have been helpful?
5. Please include your name and telephone number so that we may contact you should we have any questions about your comments.

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